Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A DSL front end, comprising:

a hybrid to provide a bi-directional interface with a communication channel, said hybrid to generate an output signal representative of a signal received from said communication channel;

an AM interference canceller to output a signal representative of AM interference to said hybrid, said signal representative of said AM interference is based on a carrier component of said AM interference while ignoring a sideband component; and

a digital summer to combine said output of said AM interference canceller with a signal based upon said output of said hybrid such that said AM interference in said DSL front end is substantially cancelled.

2. (canceled)

3. (original) The DSL front end according to claim 1, wherein:

said digital subscriber line is an asymmetric DSL (ADSL).

4. (original) The DSL front end according to claim 1, further comprising:

an adaptive circuit to determine an amount of differential mode coupling of said interfering AM radio signal with respect to an amount of common mode coupling of said interfering AM radio signal.

5. (original) The digital subscriber line front end according to claim 1, further comprising:

a reference AM radio wave receiver to output said signal representative of AM interference.

6. (original) The DSL front end according to claim 1, wherein:

said signal representative of AM interference is generated from a carrier signal recovery phase locked loop.

7. (currently amended) A ~~The~~ DSL front end, comprising: ~~according to claim 1~~,

a hybrid to provide a bi-directional interface with a communication channel, said hybrid to generate an output signal representative of a signal received from said communication channel;

an AM interference canceller to output a signal representative of AM interference to said hybrid, said signal representative of said AM interference is based on a carrier component of said AM interference while ignoring a sideband component; and

a summer to combine said output of said AM interference canceller with a signal based upon said output of said hybrid such that said AM interference in said DSL front end is substantially cancelled;

wherein said AM interference canceller comprises [[:]] a Hilbert bandpass filter.

8. (original) The DSL front end according to claim 7, wherein said AM interference canceller further comprises:

an FFT analyzer to determine a frequency of a most significant AM radio signal.

9. (original) The DSL front end according to claim 7, wherein said AM interference canceller further comprises:

an LMS module to adjust a frequency of I and Q channels of said Hilbert bandpass filter.

10. (currently amended) A digital subscriber line front end, comprising:

a DSL receiver;

a reference AM radio frequency signal receiver to receive an AM interference with an antenna; and

an AM interference canceller module to digitally sum to cancel ~~output~~ a signal representative of AM interference ~~used to substantially cancel~~ and said AM interference within said DSL receiver, said signal representative of said AM interference being ~~is~~ based on a carrier component of said AM interference while ignoring a sideband component.

11. (canceled)

12. (original) The digital subscriber line front end according to claim 10, wherein:

said digital subscriber line is an asymmetric DSL (ADSL).

13. (original) The digital subscriber line front end according to claim 10, further comprising:

an adaptive circuit to determine an amount of differential mode coupling of said interfering AM radio signal with respect to an amount of common mode coupling of said interfering AM radio signal.

14. (original) The digital subscriber line front end according to claim 10, wherein:

said reference AM radio frequency signal is generated from a reference AM radio wave receiver.

15. (original) The digital subscriber line front end according to claim 10, wherein:

said reference AM radio frequency signal is generated from a carrier signal recovery phase locked loop.

16. (original) The digital subscriber line front end according to claim 10, wherein said AM interference canceller comprises:

a Hilbert bandpass filter.

17. (original) The digital subscriber line front end according to claim 16, wherein said AM interference canceller further comprises:

an FFT analyzer to determine a frequency of a most significant AM radio signal.

18. (original) The digital subscriber line front end according to claim 16, wherein said AM interference canceller further comprises:

an LMS module to adjust a frequency of I and Q channels of said Hilbert bandpass filter.

19. (original) The digital subscriber line front end according to claim 10, wherein said AM interference canceller comprises:

a carrier recovery phase locked loop tuned to a most significant frequency of an interfering AM radio signal;

a sine gain adjustment to generate a sine signal relating to said most significant frequency; and

a cosine gain adjustment to generate a cosine signal relating to said most significant frequency.

20. (currently amended) A method of canceling an AM interference signal from a digital subscriber line signal, comprising:

detecting an AM interference signal with an antenna before said AM interference signal reaches a hybrid;

generating an AM interference cancellation signal from said AM interference signal, said AM interference cancellation signal is based on a carrier component of said AM interference signal while ignoring a sideband component; and

combining said generated AM interference cancellation signal with said digital subscriber line signal at said hybrid <u>in a digital summer</u>.

21. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 20, further comprising:

determining an amount of differential mode coupling of said interfering AM radio signal in said digital subscriber line signal.

22. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 20, further comprising:

determining an amount of common mode coupling of said interfering AM radio signal in said digital subscriber line signal.

23. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 20, further comprising:

determining a ratio of an amount of differential mode coupling of said interfering AM radio signal with respect to an amount of common mode coupling of said interfering AM radio signal.

24. (canceled)

25. (currently amended) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 20 ~~24~~, wherein:

said DSL receiver is an ADSL receiver.

26. (currently amended) A ~~The~~ method of canceling an AM interference signal from a digital subscribe line signal, comprising: ~~according to claim 20, wherein: said~~

detecting an AM interference signal with an antenna before said AM interference signal reaches a hybrid;

generating an AM interference cancellation signal from said AM interference signal ~~is generated~~ using a Hilbert bandpass filter, said AM interference cancellation signal is based on a carrier component of said AM interference signal while ignoring a sideband component; and

combining said generated AM interference cancellation signal with said digital subscriber line signal at said hybrid.

27. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 26, further comprising:

adjusting a bandpass frequency of said Hilbert bandpass filter using an LMS algorithm.

28. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 27, further comprising:

providing a coarse adjustment of said Hilbert bandpass filter with a determined carrier frequency.

29. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 28, further comprising:

determining said determined carrier frequency using an FFT analyzer.

30. (currently amended) A ~~The~~ method of canceling an AM interference signal from a digital subscriber line, comprising: ~~signal according to claim 20, wherein: said~~

detecting an AM interference signal with an antenna before said AM interference signal reaches a hybrid;

generating an AM interference cancellation signal ~~is generated~~ using an AM carrier recovery PLL, followed by gain adjustments of cosine and sine phases of said recovered AM carrier signal, said AM interference cancellation signal being based on a carrier component of said AM interference signal while ignoring a sideband component; and

combining said generated AM interference cancellation signal with said digital subscriber line signal at said hybrid.

31. (original) The method of canceling an AM interference signal from a digital subscriber line signal according to claim 30, further comprising:

adjusting said gain adjustments based on an LMS algorithm.

32. (currently amended) Apparatus for canceling an AM interference signal from a digital subscriber line signal, comprising:

means for detecting an AM interference signal with an antenna before said AM interference signal reaches a hybrid;

means for generating an AM interference cancellation signal from said AM interference signal, said AM interference cancellation signal is based on a carrier components of said AM interference signal while ignoring a sideband component; and

means for combining said generated AM interference cancellation signal with said digital subscriber line signal at said hybrid in a digital summer.

33. (original) The apparatus for canceling an AM interference signal from a digital subscriber line signal according to claim 32, further comprising:

means for determining an amount of differential mode coupling of said interfering AM radio signal in said digital subscriber line signal.

34. (previously presented) The apparatus for canceling an AM interference signal from a digital subscribe line signal according to claim 32, wherein:

said AM interference cancellation signal is generated using a Hilbert bandpass filter.